8

Remarks

Applicants appreciate the recognition of patentable subject matter in the present application.

Applicant hereby adds new claims 28-31. Accordingly, claims 1-31 are pending in the present application.

Claims 1-7, 10-12, 15-17 and 20-26 stand rejected under 35 USC 102(e) for anticipation by U.S. Patent No. 7,088,392 B2 to Kakarala et al. Claims 8, 13 and 18 stand rejected under 35 USC 103(a) for obviousness over Kakarala in view of the article entitled "Bilateral Filtering of Gray and Color Images" by Tomsai et al. .

Applicants respectfully request reconsideration of the rejections.

Referring to the anticipation rejections, Applicant notes the requirements of MPEP §2131 (8th ed., rev. 5), which states that TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM. The identical invention must be shown in as complete detail in the prior art as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). **The elements of the prior art must be arranged as required by the claim.** *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Referring to claim 1, the system comprises processing circuitry configured to perform a *single processing operation* to denoise and sharpen the image data of the individual one pixel location. The Office relies upon a plurality of processing operations of Kakarala to allegedly teach the claimed limitations of denoising and sharpening. In particular, the Office identifies col. 15, lines 36-61 (Fig. 6B) of Kakarala as teaching the denoising and col. 15, lines 62+ (Fig. 7) of Kakarala as teaching the sharpening. Applicants respectfully submit the teachings relied upon by the Office fail to teach or suggest positively recited limitations of the claims.

There is no teaching or suggestion that the different processes of Figs. 6B and 7 are performed in a single processing step as claimed. In particular, Figs. 6B and 7 use different formulae including equation 19 and equations 20, 21, respectively. The calculations using plural different equations demonstrate that the disparate processes of Figs. 6B and 7 are not performed in a single processing operation.

Furthermore, Fig. 6B is performed prior to demosaicing as set forth in col. 14, lines 59+ while Fig. 7 is performed after demosaicing per col. 16, lines 25+.

S/N: 10/632,291
PDNO. 200308995-1
Amendment A

9

Finally, Fig. 6B applies to processing of green information only to cure mismatch of the G1 and G2 pixels while the disparate process of Fig. 7 is applied to respective ones of the fully-populated color planes red, green or blue after demosaicing.

It is clear that the different processes of Figs. 6B and 7 involve respective different calculations using different formulae, are performed at different moments in time (i.e., before and after demosaicing), and operate upon different data (i.e., G1 and G2 pixels versus red, green and blue demosaiced data). The disparate processes of Figs. 6B and 7 fail to teach or suggest the claimed processing circuitry configured to perform the single processing operation as claimed and claim 1 is allowable for at least this reason.

The claims which depend from claim 1 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Referring to dependent claim 2, the Office identifies Figs. 6B and 7 as allegedly teaching a robust estimation filter. The Office has provided no support, explanation or evidence that the Fig. 6B for curing green mismatch or the sharpening of Fig. 7 teaches or suggests the claimed robust estimation filter. Applicants have electronically searched Kakarala and failed to uncover any teaching of the claimed robust estimation filter. Limitations of claim 2 are not taught and Applicants respectfully submit claim 2 is allowable for at least this reason.

Referring to dependent claim 5, the Office in support of the rejection of claim 1 relies upon the teachings of Figs. 6B and 7 as allegedly teaching the claimed single processing operation. However, Figs. 6B and 7 operate upon green image data and red, green and blue image data, respectively, and the Office has failed to demonstrate that the processes of Figs. 6B and 7 process *luminance information*. The Office relies upon Steps 330, 350 of Fig. 3 of Kakarala as allegedly teaching the limitations of claim 5. However, Fig. 3 is the demosaicing algorithm and Fig. 6B is performed before the demosaicing and Fig. 7 is performed after the demosaicing. There is no evidence that the processes of Figs. 6B and 7 are performed upon luminance information and such an interpretation is contrary to the explicit teachings of processing R, G, B data of an RGB color space. The Office relies upon different disparate teachings of Kakarala (Fig. 3 versus Figs. 6B and 7) as allegedly

S/N: 10/632,291
PDNO. 200308995-1
Amendment A

10

teaching the claimed single processing operation of luminance information in claims 1 and 5 and this reliance demonstrates the inappropriateness of the 102 rejection.

Referring to independent claim 7, the Office has failed to provide an explanation or evidence that the plural formulae of the respective Figs. 6B and 7 teach or suggest the explicitly claimed *robust estimation filter*. Applicants have electronically searched the entirety of Kakarala and failed to uncover any reference to the claimed robust estimation filter. Applicants respectfully submit that positively recited limitation are not disclosed nor suggested by the prior art and claim 7 is allowable for at least this reason.

The claims which depend from claim 7 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Referring to the obviousness rejection of claim 8, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See, e.g., MPEP §2143 (8th ed., rev. 5).

For a proper 103 rejection, the examiner must establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPO2d 1596, 1598 (Fed. Cir. 1988). Reasons for the decision to combine references must be articulated. In re Lee, 277 F.3d 1338, 1342, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002). The examiner must show that there is a teaching, motivation, or suggestion of a motivation to combine references relied on as evidence of obviousness. Id. 277 F.3d at 1343, 61 USPQ2d at 1433-34. It is insufficient to rely on the examiner's own understanding or experience, or the Examiner's assessment of what would be basic knowledge or common sense but rather must point to some concrete evidence in the record in support of these findings. In re Zurko, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001). The Examiner must make requisite findings, based on evidence of record, and also explain the reasoning by which the findings are deemed to support the examiner's conclusion. These showings by the examiner are an essential part of

S/N: 10/632,291
PDNO. 200308995-1
Amendment A

11

complying with the burden of presenting a prima facie case of obviousness. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

The Office at page 8 of the Action states that the combination is appropriate to not produce phantom colors along edges in color images and to reduce phantom colors where they appear in the original image as taught by Tomsai. However, Applicants have electronically searched the entirety of Kakarala (the primary reference being modified) and have failed to uncover a single mention of phantom images. There is no evidence of record that the demosaicing algorithm of Kakarala is subject to producing phantom images. There is no evidence of record that the Tomasi teachings are applicable to the demosaicing algorithm of Kakarala or that phantom images, if such were even demonstrated to present in Kakarala, would be reduced by the combination proposed by the Office. Applicants respectfully submit the Office has failed to establish a proper evidentiary basis for supporting a proper 103 prima facie rejection and Applicants respectfully submit the rejection is improper for at least this reason.

Referring to claim 10, the Office relies upon the teachings of col. 15, lines 15-18 and states that the teachings of Fig. 6B can be performed after demosaicing operations. Applicants respectfully disagree with the interpretation of the Kakarala teachings by the Office. Col. 14, lines 59+ states that the steps of Figs. 6A and 6B are *applied prior to demosaicing*. The teachings of col. 15 in no fair interpretation may be considered to teach processing of Fig. 6B after demosaicing. The only disclosed arrangements of Kakarala are processing using Figs. 6A and 6B prior to demosacing and the Office has failed to identify any teachings that either of Figs. 6A and 6B are implemented after demosaicing. The processing of the image data using the robust estimation filter to at least one of sharpen and denoise the image data after demosaicing is not disclosed nor suggested by the prior art and claim 10 is allowable for at least this reason.

Referring to independent claim 12, the Office has failed to provide an explanation or evidence that the plural formulae of the respective Figs. 6B and 7 of Kakarala teach or suggest the explicitly claimed *robust estimation filter*. Applicants have electronically searched the entirety of Kakarala and failed to uncover any reference to the claimed robust estimation filter. Applicants respectfully submit

S/N: 10/632,291
PDNO. 200308995-1
Amendment A

PAGE 13/18 * RCVD AT 2/14/2007 7:44:07 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-3/22 * DNIS:2738300 * CSID:5098383424 * DURATION (mm-ss):07-00

12

that positively recited limitations are not disclosed nor suggested by the prior art and claim 12 is allowable for at least this reason.

The claims which depend from claim 12 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Referring to independent claim 17, the Office has failed to provide an explanation or evidence that the plural formulae of the respective Figs. 6B and 7 teach or suggest the explicitly claimed *robust estimation filter*. Applicants have electronically searched the entirety of Kakarala and failed to uncover any reference to the claimed robust estimation filter. Applicants respectfully submit that positively recited limitation are not disclosed nor suggested by the prior art and claim 17 is allowable for at least this reason.

The claims which depend from claim 17 are in condition for allowance for the reasons discussed above with respect to the independent claim as well as for their own respective features which are neither shown nor suggested by the cited art.

Referring to dependent claim 25, the adjusting pixel data of the one of the pixel locations using image data of at least one other pixel location comprises *adjusting to denoise the image data responsive to a difference of the image data of the one and the other pixel locations being less than a threshold* and *adjusting to sharpen the image data responsive to the difference of the image data being greater than the threshold*. The Office relies upon Figs. 6B and 7 as allegedly teaching the claimed denoising and sharpening, respectively. Applicants have failed to uncover any teaching of the process of Fig. 6B being used responsive to the difference of the image data being less than a threshold or the process of Fig. 7 being used if the difference is greater than a threshold. The Office alleges a vague connection of step S330 in Fig. 3 and step 670 of Fig. 6B in support of the rejection. However, a single operation with respect to a threshold within the process of Fig. 6B fails to teach determination of the application of the processes of Figs. 6B and 7. The teachings relied upon by the Office have not been demonstrated to teach the claimed limitations. There is no teaching in Kakarala of the claimed image data differences and thresholds being used to determine whether Fig. 6B or Fig. 7 processes are used. The limitations of claim 25 are not disclosed nor suggested by the prior art and claim 25 is allowable for at least this reason.

S/N: 10/632,291
PDNO. 200308995-1
Amendment A

13

Applicants respectfully submit an Information Disclosure Statement herewith.

Applicants hereby add new claims 28-31 which are supported at least by Figs. 2,3, 5 and 6 and the associated teachings of the specification.

Applicant respectfully requests allowance of all pending claims.

The Examiner is requested to phone the undersigned if the Examiner believes such would facilitate prosecution of the present application. The undersigned is available for telephone consultation at any time during normal business hours (Pacific Time Zone).

Respectfully submitted,
Renalo Keshet et al.

By

James D. Shaurette
Reg. No. 39,833
Date: 2/14/07
(509) 624-4276

S/N: 10/632,291
PDNO. 200308995-1
Amendment A